

CLAIMS

1. A method for detecting delayed Radio Link Protocol frames, and
2 preventing the transmission of unnecessary Negative Acknowledgement
messages and data frame retransmissions, comprising the steps of:

4 buffering an unsequentially received Radio Link Protocol frame; and
withholding the transmission of a Negative Acknowledgement message
6 for a delayed Radio Link Protocol frame until the delayed Radio Link Protocol
frame has been missing longer than a predefined time period.

2. The method of claim 1 further comprising the step of assigning a
2 timer/counter to the buffered Radio Link Protocol frame for determining the
necessity of transmitting a Negative Acknowledgement message for an
4 unreceived Radio Link Protocol frame.

3. The method of claim 1 further comprising the steps of:
2 ⇒ buffering a Negative Acknowledgement message for an
unreceived Radio Link Protocol frame; and
4 assigning a timer/counter to the buffered Negative
Acknowledgement message to prevent unnecessary transmission of the
6 Negative Acknowledgement message if the unreceived Radio Link Protocol
frame arrives before the expiration of a predefined time period.

4. The method of claim 1 further comprising the step of delaying
2 updating the expected sequence number until a delayed Radio Link Protocol
frame has been received

5. A wireless communications device configured to detect delayed
2 Radio Link Protocol frames, and prevent the transmission of unnecessary
Negative Acknowledgement messages and data frame retransmissions,
4 comprising:

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6 a processor; and
a storage medium coupled to the processor and containing a set of
instructions executable by the processor to buffer an unsequentially received
8 Radio Link Protocol frame; and
withhold the transmission of a Negative Acknowledgement
10 message for a delayed Radio Link Protocol frame until the delayed Radio Link
Protocol frame has been missing longer than a predefined time period.

6. The wireless communications device of claim 5, wherein:
2 the set of instructions is further executable by the processor to
assign a timer/counter to the buffered Radio Link Protocol frame to determine
4 the necessity of transmitting a Negative Acknowledgement message for an
unreceived Radio Link Protocol frame.

7. The wireless communications device of claim 5, wherein:
2 the set of instructions is further executable by the processor to
buffer a Negative Acknowledgement message for an unreceived Radio Link
4 Protocol frame; and
assign a timer/counter to the buffered Negative
6 Acknowledgement message to prevent unnecessary transmission of the
Negative Acknowledgement message if the unreceived Radio Link Protocol
8 frame arrives before the expiration of a predefined time period.

8. The wireless communications device of claim 5, wherein:
2 the set of instructions is further executable by the processor to
delay updating the expected sequence number until a delayed Radio Link
4 Protocol frame has been received.

9. The wireless communications device of claim 5, wherein:
2 the device is a base station transceiver.

10. The wireless communications device of claim 5, wherein:
the device is a mobile telephone.
11. The wireless communications device of claim 5, wherein:
the device is a data terminal.